

## ABSTRACT OF THE DISCLOSURE

A radioactive substance decontamination method and apparatus which decontaminates a metal member contaminated by radioactive substance in a short period of time. This apparatus has (1) multiple reducing decontamination tanks having different radiation control values; (2) a carrier for immersing the metal member into the multiple reducing decontamination tanks and a washing tank; (3) a tube for transferring into the second reducing decontamination tank the reducing decontamination agent in the first reducing decontamination tank; (4) a reducing agent decomposer for decomposing a component contained in the reducing decontamination agent of the reducing decontamination tank where the radiation control value is the highest out of the reducing decontamination tanks connected by the tube; and (5) a washing tank for washing the reducing decontamination agent deposited on the decontaminated metal member.